approximately 75 miles over Alternative D (from Edgemont to Black Thunder Mine, 82.8 miles for Alternative C verses 158.2 miles for Alternative D). There would be no impacts to communities along the BNSF line such as Newcastle, Moorcroft, and Upton, and bypassing Rapid City would also eliminate many potential impacts to human resources from increased train operations there. However, Modified D would still be about 85.9 miles longer than Alternative C.

3.1.2.3 SEA's Conclusion on Modified D

Based on the previous considerations, SEA has determined that Modified D would have significant environmental impacts, many of them difficult or impossible to mitigate. The primary attraction of Alternative D and Modified D is using DM&E's existing line. But a thorough analysis indicates that many of the potential benefits of using the existing rail corridor would be lost, due to the extent of new construction and the new right-of-way that would be required, and the potential environmental impacts of the required construction. Modified D offers no advantages over Alternatives B or C – such as reduced distance, fewer environmental impacts, lower cost, or less complicated engineering – and the existing alignment could not reasonably be optimized for unit-coal transport. Modified D also does not avoid the Thunder Basin National Grassland in Wyoming, although the Buffalo Gap National Grassland would be avoided. Therefore, SEA has concluded that neither Alternative D, nor Modified D, is a reasonable and feasible alternative, and has consequently eliminated them from further consideration in this Final EIS.

SEA has worked closely with EPA in conducting this additional analysis, and after concluding that Modified D would result in potentially severe environmental impacts, discussed with EPA the results of its analysis. After considering SEA's results, EPA has concurred that Modified D is not a reasonable and feasible alternative for this project, (see Appendix C). EPA also agreed that, with the elimination of the Modified D Alternative, a Supplemental Draft EIS is no longer necessary.

3.2 ENVIRONMENTAL IMPACTS OF EXTENSION ALTERNATIVES

In the Draft EIS, SEA analyzed the potential environmental impacts of extending DM&E's existing rail line from Wall, South Dakota, westward to the mines in the PRB, by evaluating the impacts of Alternatives B, C, and the original D, on a variety of natural and human resources. Nothing in the comments to the Draft EIS led SEA to modify its conclusion that the original D Alternative would not be reasonable and feasible, and, as discussed above, the Modified D Alternative also has been carefully assessed, but eliminated from further consideration.

The comments on the Draft EIS analysis of the Extension Alternatives are summarized in Appendix B. Comment responses that required no additional analysis are included at the end of each comment summary. Comments that required additional analysis or more extensive discussion are summarized and discussed in later sections of this chapter.

As explained in the following sections, SEA has analyzed, by environmental topic, the potential impacts associated with construction and operation of the two remaining Extension Alternatives, B (Figure 3-18) and C (Figure 3-19). However, it should be noted that these alternatives are not continuous from Wall to the coal mines and must be combined with alternatives for the Spring Creek and Hay Canyon areas and the options to access the Black Thunder and North Antelope coal mines in order to consider the potential impacts of a continuous route. After assessing all of these alternatives, SEA presents its recommendations for the environmentally preferable Extension Alternative (Alternative C combined with the Phiney Flat Alternative, WG Divide Alternative, Black Thunder North Mine Loop, and North Antelope East Mine Loop).

3.2.1 SAFETY

The proposed project would create new rail line crossings of roadways, most at the same level as the roadway (at-grade or grade crossings), requiring vehicles to cross the rail line, and creating the potential for accidents. In the Draft EIS, SEA determined the number of new grade crossings Alternatives B and C would create and used it as an indicator of the potential for train/vehicle accidents. As discussed in detail in the Draft EIS, Appendix H, SEA also evaluated the potential for accidents at grade crossings.

Alternative B would create 44 new grade crossings, and Alternative C would create 45 new grade crossings. Although Alternative C would have one more grade crossing than Alternative B, SEA determined that Alternative B would have a greater impact on safety due to a significant potential for accidents at four road crossings:

- Old U.S. Highway 18, Fall River County, South Dakota (100 million ton operation level),
- U.S. Highway 85, Niobrara County, Wyoming (50 and 100 million ton level),
- U.S. Highway 450, Campbell County, Wyoming (20, 50, and 100 million ton level), and
- Bishop Road, Campbell County, Wyoming (50 and 100 million ton level).

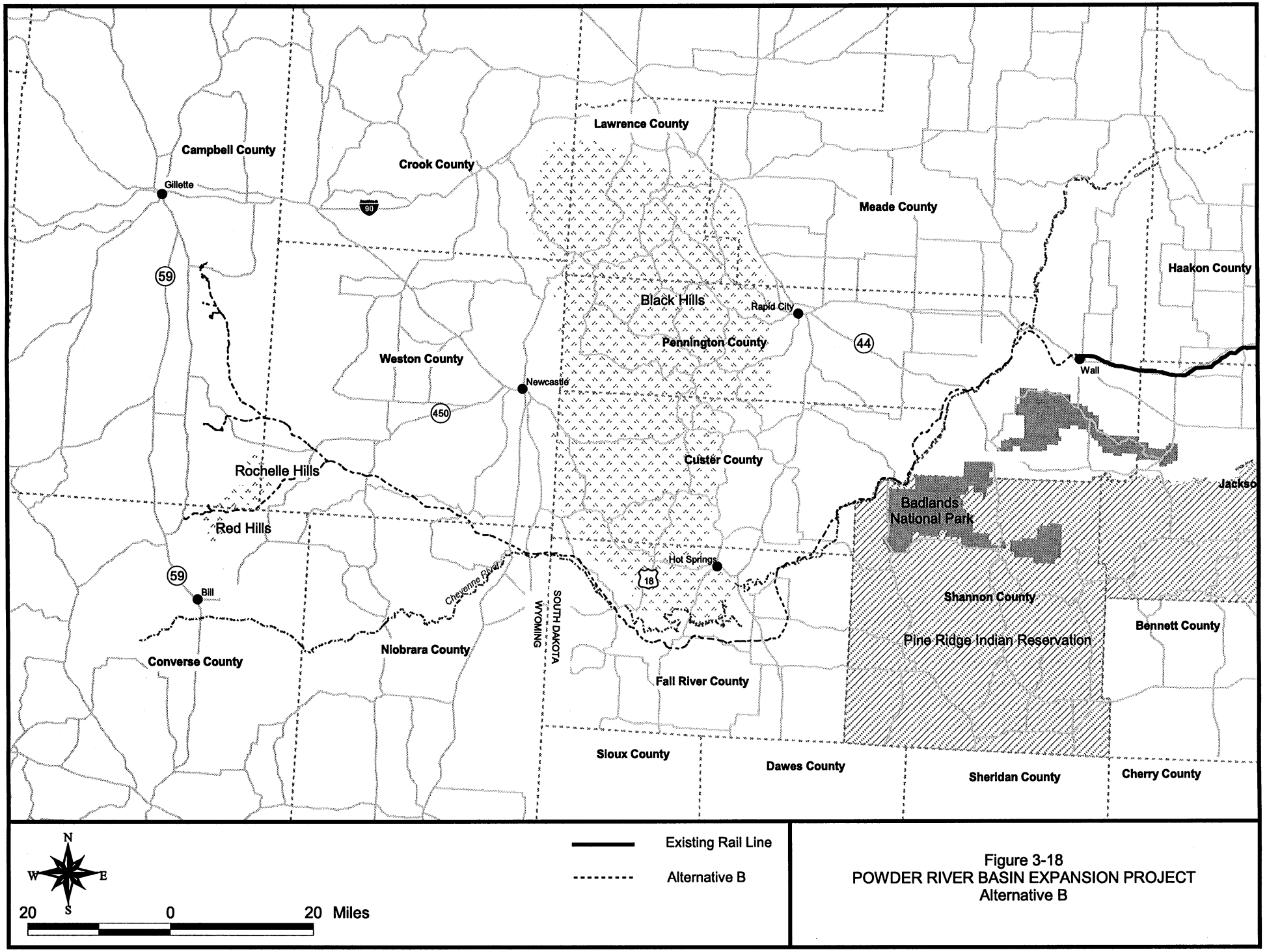


Figure 3-18
POWDER RIVER BASIN EXPANSION PROJECT
Alternative B

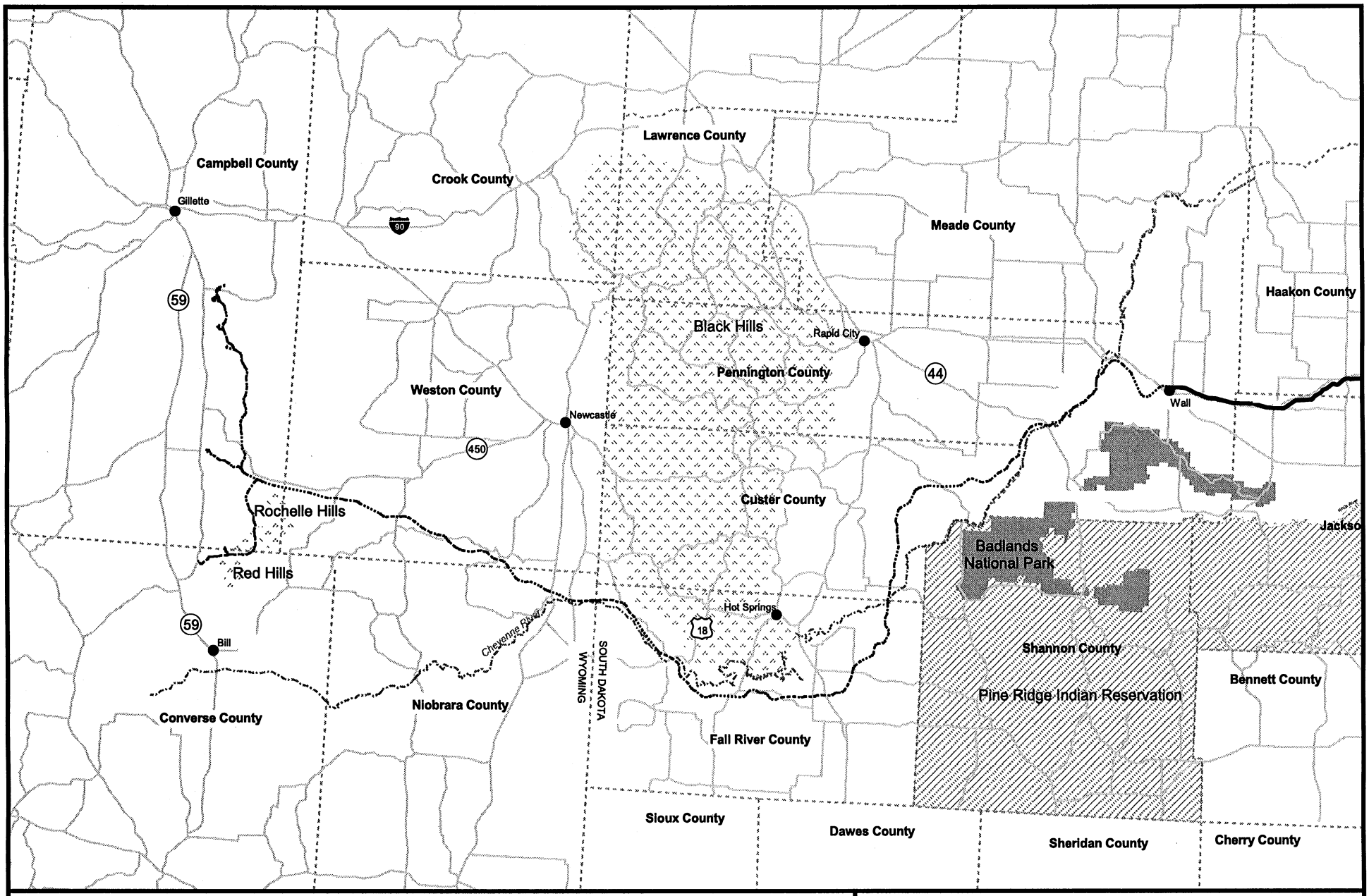


Figure 3-19
POWDER RIVER BASIN EXPANSION PROJECT
Alternative C

Alternative C would also have significant potential for accidents at three road crossings:

- U.S. Highway 85, Niobrara County, Wyoming (50 and 100 million ton level),
- U.S. Highway 450, Campbell County, Wyoming (100 million ton level), and
- Bishop Road, Campbell County, Wyoming (50 and 100 million ton level).

All roads significantly affected by Alternative C would also be affected by Alternative B.

During the Draft EIS comment period, DM&E submitted a grade crossing mitigation plan that described in detail grade crossing protection for which DM&E proposed to pay substantially more than normally paid by a railroad (90 percent rather than 5-10 percent) to implement. SEA determined that the aforementioned grade crossings would experience significant increases in accident frequency even with the grade crossing protection provided in this plan. As discussed in Chapter 12, SEA is recommending that the Board impose a condition on any decision approving this project requiring DM&E to comply with its grade crossing mitigation plan. Additionally, SEA has included recommended mitigation in Chapter 12 which would require DM&E to provide additional grade crossing protection at these crossings.

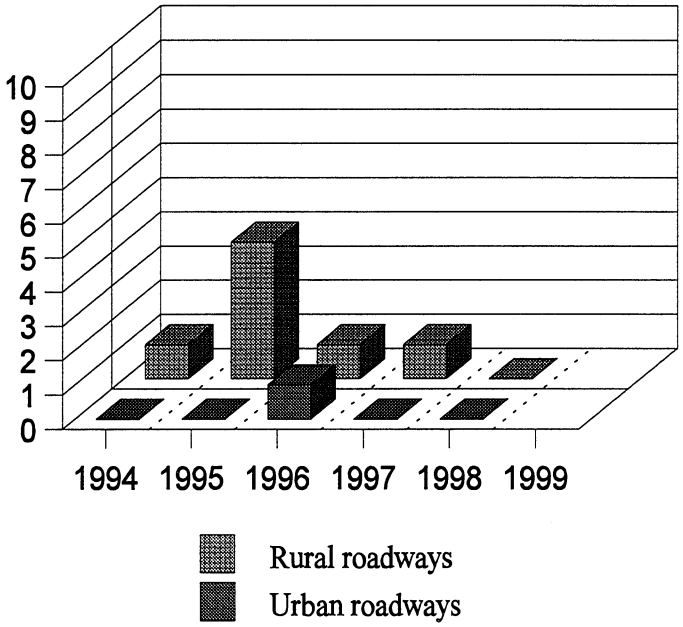
Several Draft EIS comments suggested a greater likelihood of a train/vehicle accident, as well as a fatal train/vehicle accident, at a rural grade crossing than at an urban grade crossing. SEA's Draft EIS analysis gave an estimate of accident frequency at public grade crossings, but did not address rural versus urban crossings or fatal versus non-fatal accidents.

In response to the comments, SEA compiled additional information on grade crossing accidents, including the number involving a fatality, from the South Dakota and Wyoming Departments of Transportation and the National Highway Traffic Safety Administration (NHTSA) Fatality Analysis Reporting System (FARS) database.[7] The South Dakota DOT maintains records of accidents at grade crossings, but does not publish a report which classifies these accidents as rural or urban. A search of the FARS database reported 15 fatal grade crossing accidents in South Dakota between 1994 and 1999. Of these, 13 occurred on rural roadways, and two on an urban roadway (Figure 3-20). Based on the data for this six year period, approximately 87 percent of all fatalities from grade crossing accidents in South Dakota occurred at rural grade crossings. The South Dakota DOT data is in agreement with these numbers.

[7] Department of Transportation, Fatality Analysis Reporting System, at http://www-fars.nhtsa.dot.gov/, February 28, 2001. A grade crossing accident involves a train and a driver-operated vehicle. Colliding passenger cars at a grade crossing would not qualify, nor would trains colliding with no driver-operated vehicles involved. A fatal grade-crossing accident must have resulted in loss of human life as a direct result of the crash or collision.

The Wyoming DOT provided grade crossing accident statistics from 1983 through 2000. Wyoming's data indicates a total of 105 grade crossings accidents during this time period, with 51 occurring in urban areas and 54 in rural areas. The 105 grade crossing accidents reported by Wyoming DOT for the 17-year time period between 1983 and 2000 resulted in six fatalities, four at rural grade crossings, and two at urban grade crossings. According to Wyoming DOT a location is considered urban if it is within the boundaries of an incorporated area or has a population of 5,000 or more. Based on this data, approximately 67 percent of fatal grade crossing accidents in Wyoming occur at rural grade crossings. The FARS database does not report any fatalities at Wyoming grade crossings from 1994 through 1999.

Figure 3-20 Grade crossing fatalities in South Dakota



A 1994 report on fatal crashes at grade crossings issued by the NHTSA[8] indicates that 60 percent of all fatal rail crossing crashes in the United States occur in rural areas. The study also reports that between 1975 and 1992 over 30 percent of all fatal crashes at grade crossings occurred at crossings on roadways with a posted speed limit of 55 mph. Between 1982[9] and 1992, over 30 percent of fatal crashes occurred at grade crossings where a crossbuck[10] was posted. The 1994 report states that the majority of grade crossing accidents occurred on straight, blacktop roadways, under dry road conditions. Poor road conditions apparently are not a major

[8] Terry Klein, Tina Morgan, and Adrienne Weiner, *Rail-Highway Crossing Safety Fatal Crash and Demographic Descriptors,* National Technical Information Service, 1994.

[9] Information prior to 1982 used a different criteria for crossing protection that does not specify crossbucks as a means of crossing protection.

[10] Crossbucks are black-and-white X-shaped signs that read "RAILROAD CROSSING."

factor in rail grade crossing accidents. This may be due to drivers traveling at slower speeds and paying greater attention to driving conditions under bad weather or other poor road conditions. The factors that most grade crossing accidents have in common are driver-related and include failure to yield, failure to obey traffic or warning signals, and failure to be attentive.

All of the proposed Extension Alternatives would create predominantly rural grade crossings. As noted in the Draft EIS, the majority of these crossings would not exceed Board thresholds for accident frequency.[11] However, in the unlikely event of a train/vehicle accident at one of these crossings, there would be a greater likelihood of a fatality occurring.

SEA also looked closely at the number of new grade crossings each Extension Alternative would create. As noted earlier, Alternative B would have 44 new grade crossings and Alternative C would create 45 new grade crossings. SEA looked at the number of new grade crossings as another measure of the potential for each alternative to affect vehicle safety. The fewer the grade crossings, the less opportunity for vehicles to encounter a train. Therefore, it is important to minimize the number of new grade crossings.[12]

After conducting further safety analysis, SEA has determined that, as noted in the Draft EIS, both Alternatives B and C would have potentially significant impacts to vehicle safety at grade crossings, but mitigation proposed by DM&E, and recommended in Chapter 12 of this Final EIS, would reduce these impacts to below significant levels. Alternative C would have one more grade crossing than Alternative B. But, because this would be of a rural roadway with a low level of vehicle traffic, the potential safety impacts at this crossing would be minimal. Therefore, SEA determined Alternative C, with the mitigation recommended in Chapter 12, would have no significant impact on safety.

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[11] SEA's thresholds for accident frequency are one or more additional accidents every 100 years for Category A grade crossings (in South Dakota, crossings determined to have one or more accidents every 20 years; in Wyoming, crossings determined to have one or more accidents every 40 years), and one or more additional accidents every 20 years for Category B grade crossings (all other crossings), as discussed in detail in the Draft EIS, Chapter 4, Section 4.4, and Appendix H.

[12] This analysis is in keeping with the Federal Railroad Administration's (FRA) Closed Crossing Initiative, established in 1991 at the National Conference on Highway-Rail Safety. At this conference, held on July 7-10, 1991 in Philadelphia, FRA announced that it would work to achieve a 25 percent reduction in the number of rail/highway grade crossings nationwide. (73,210 crossings). As of December, 2000, FRA had achieved approximately 52 percent of its goal, having closed a total of 38,183 crossings. SEA agrees with FRA that reductions in grade crossings provide the most effective way to improve vehicle safety and supports efforts to close additional crossings.

3.2.2 TRANSPORTATION

As SEA acknowledged in the Draft EIS, any of the proposed Extension Alternatives have the potential to impact transportation in the project area. For example, there would be temporary delays to motorists during construction of grade crossings, delays to motorists when trains are passing through grade crossings, and delays to emergency vehicles. However, SEA determined that due to the low population of the area and low level of vehicle traffic on the roads crossed by the Extension Alternatives (44 or 45 new grade crossings depending on the alternative for more than 250 miles of new rail line), neither of the proposed alternatives would have a significant impact on vehicle delay. SEA indicated in the Draft EIS that it is possible that an emergency vehicle could be blocked by a passing train when responding to an emergency. But because emergencies are random events, SEA saw no valid way to predict the likelihood of a passing train delaying an emergency vehicle, whether such a delay would result in increased loss of life or property, or whether any differences in the potential to delay emergency vehicles would exist between the Extension Alternatives.

Comments on the Draft EIS raised concerns that the rural nature of the project area and the limited road access to many areas would impede the movement of emergency vehicles, and that delays to emergency vehicles responding to medical emergencies and fires could result in increased loss of life and property damage. In response, SEA contacted a number of emergency service providers,[13] including fire and rescue, ambulance, and police. All indicated that to the extent possible, they respond to emergencies along routes which would avoid potential delays, including those created by a passing train. SEA recognizes that in sparsely populated rural areas like the area around Extension Alternatives, a route which would avoid the need to cross the rail line may not be available. In such cases, emergency service providers indicated that they respond to an emergency with a primary and alternate route in case an obstruction is encountered. If available, a second response unit may be dispatched along another route or notified of the emergency so it can respond quickly should the first unit be delayed. In the rural, largely undeveloped area of the Extension Alternatives, the firebreak along the rail line, which also would serve as a rail line service road, could provide a potentially shorter route to an open crossing than would backtracking to reach an alternate crossing. Appropriate advance planning of alternative response routes by emergency service providers generally should allow for continued timely response to emergencies in the project area.

[13] These included Kansas City, Lees Summit, and St. Peters, Missouri; Scottsbluff, Nebraska; Aberdeen, South Dakota, Baltimore, Maryland, and Durham, North Carolina.

SEA also investigated whether South Dakota and Wyoming had regulations or guidelines governing the amount of time a train could block a road crossing. In Wyoming, the Wyoming Department of Transportation's (WYDOT) rules conform to the "General Code of Operating Rules" for rail operations. WYDOT's rules prohibit a train from blocking a public grade crossing for more than 10 minutes, except if the train is in motion, disabled, complying with a safety signal or other railroad safety regulation, stopped to avoid an accident, or no traffic is being blocked at the crossing.

In South Dakota, the state regulations prohibit a train from blocking an emergency vehicle responding to an emergency for more than 20 minutes, unless the train is disabled or cannot be moved without hitting a person or object on the rail line. Crossings, and thus vehicles, may be blocked for more than 20 minutes if an emergency vehicle is not being blocked from responding to an emergency call.

Thus, in both states, it is within the states' guidelines that, under normal operating conditions, emergency vehicles could be blocked from responding to a call for 10 minutes or more at a rail/highway grade crossing. This represents over three times the period of time required for a train operating as contemplated for this project to pass a crossing.[14] Thus, while any of the proposed Extension Alternatives would potentially block movement of vehicles, including emergency vehicles, under normal and anticipated operating conditions, none of them would violate any state regulations or guidelines regarding the blocking of crossings.

Based on SEA's additional investigation of the potential impacts of the proposed project in the area of transportation, SEA has determined that its analysis presented in the Draft EIS was appropriate. SEA does not anticipate any significant impact to vehicle delay or the movement of emergency vehicles as a result of either Alternative B or Alternative C.

Several commenters, including the State of South Dakota, noted that the Wall Municipal Airport, Wall, South Dakota, recently had submitted plans to the Federal Aviation Administration (FAA) to expand the airport runway by 1,300 feet, from 3,500 feet to 4,800 feet. The State was concerned that the proposed new rail line construction would interfere with the proposed runway expansion. In response, SEA obtained plans for the airport which showed the existing runway and proposed runway expansion in relation to the proposed rail line.

[14] Based on a 135-car train, approximately 7,400 feet in length traveling at 45 miles per hour requiring 3.1 minutes to clear a crossing.

The proposed alignment for new rail line construction does not appear to present any operational concerns with existing airport operations. However, under the proposed expansion, the existing runway would extend into the right-of-way of the proposed rail line, resulting in a direct conflict between the two facilities. Presently, the proposed runway expansion calls for the existing runway to be extended to the northwest. It does not appear that adequate space is available to feasibly extend the runway to the southeast, as other airport facilities, including numerous fuel tanks, and the town of Wall are presently located in this area. While the presence of the proposed rail alignment would preclude extension of the full 1,300 feet, it may be possible to extend the runway several hundred feet without resulting in conflict with the rail line. However, this additional distance may be inadequate to provide for the safe take-off and landing of the type of aircraft intended to be served by the full extension.

SEA consulted airport personnel for more information on the status of the proposed extension. SEA learned that the proposed extension is part of its long-range plans, and while desirable, is subject to obtaining Federal funding.[15] No date for construction of the extension has been established, and airport personnel indicated that the runway extension probably would not take place until after completion of the resurfacing of the existing runway, scheduled for 2003 or 2004.[16]

Based on the available information, SEA believes that it is currently somewhat speculative as to whether or not expansion of the runway will ever occur, and that, in any event, any expansion appears to be several years away. Thus, construction of the new rail line, if final approval is granted, could be underway or completed at such time as the airport is in a position to move forward with the runway extension project. The alignment of the new rail construction as currently planned would interfere with the full runway extension. However, the runway extension project is uncertain, and it appears, through review of aerial photography, that it may be possible for DM&E to adjust its proposed alignment slightly, without significant changes to its plans or the potential environmental impacts, to make the rail line compatible with the runway extension. To assure that the necessary consultations to accomplish this take place, SEA has recommended mitigation that would require DM&E to coordinate with the City of Wall and the State of South

[15] It is expected that the FAA would provide 90 percent of the funding, the City of Wall would provide 6 percent, and the State of South Dakota would provide 4 percent.

[16] Personnel at Wall Municipal Airport expressed support for the proposed PRB Extension Project. While the new rail line construction would conflict with the proposed runway extension, they emphasized that the runway project was a proposal and may not ever be approved, funded, and constructed.

Dakota to evaluate ways to potentially develop the proposed rail alignment, if possible, in such a way as to enable runway expansion to remain feasible (See Chapter 12).

3.2.3 LAND USE

A variety of land uses occur within the project area of the proposed Extension Alternatives. These include ranching, farming, business and commercial, and residential uses. The following discusses SEA's additional consideration of land use issues beyond those included in Chapter 4, Section 4.4 of the Draft EIS in response to comments received on the Draft EIS.

3.2.3.1 Ranching

In the Draft EIS, SEA discussed ranching under the heading of rangeland/grazing land. Both of these are types of land use necessary for raising livestock. In the project area, cattle are the primary livestock raised. However, sheep, horses, and goats also are raised. Farms for raising livestock are commonly referred to as ranches. The activity of raising livestock and maintaining them can be generally defined as ranching.

The Draft EIS discusses in detail the potential impacts to ranching (Chapter 4, Section 4.4.6.1.1). These impacts include:

- fragmentation of grazing pastures and allotments,
- isolation of portions of pastures and allotments from necessary resources (such as water) and ranch improvements,
- disruption of ranching patterns and operations,
- blocking access to pastures and allotments and disruption of normal livestock movements,
- damage to ranch improvements, such as fences, buildings, or shelter belts,
- spread of noxious weeds,
- loss of livestock to vehicle and train accidents, and
- loss of forage due to railroad-induced fires.

These impacts differ in nature and extent for each ranch crossed by a potential alternative. Impacts to ranching depend on variables such as the size of the ranch, how and where the rail alignment would cross the ranch, and how the lands within the ranch are managed and operated. In order to compare the different alternatives, SEA determined the amount of grazing and rangeland potentially affected by each alternative. SEA used the amounts of grazing and rangeland converted to rail line right-of-way as an indicator of the potential project impacts to

ranching. Thus, the more grazing and rangeland affected, the greater the potential for significant adverse impacts to ranching.

The Draft EIS indicated that Alternative B would cross approximately 231.6 miles of rangeland (ranchland), including 90.3 miles in South Dakota (4,378.2 acres) and 141.3 miles in Wyoming (6,850.9 acres). Alternative C would cross approximately 207.0 miles of ranchland, including 75.8 miles in South Dakota (3,673.2 acres) and 121.6 miles in Wyoming (5,895.7 acres).

A number of comments on the Draft EIS appeared to support and reiterate the types and range of potential impacts to ranchland and ranching operations SEA identified in the Draft EIS. Therefore, no additional analysis of these impacts was required.

SEA did receive comments expressing concern that ranching should not have been classified as an agricultural land use because it differs from farming. SEA agrees that ranching and farming are dramatically different uses of the land. SEA had grouped farming and ranching under agriculture because both ranching and farming are activities dependent upon the land and involve the production of food and feed, whether it be for human or animal consumption. While it does not effect the overall analysis of impacts, SEA has broken agricultural land use into ranching and farming for this Final EIS in response to concerns raised in comments.

Additionally, SEA received comments that ranching should have been assessed under the category of business and industrial because ranching is a business and many persons within the project area depend upon it for their livelihood. SEA recognizes that ranching is a means of making a living. In the Draft EIS, however, business and industrial land referred to areas developed as stores, factories, restaurants, service stations, and other places of commerce that serve the general public. Ranches include facilities such as barns, corrals, garages, and homes, but typically people do not do business at a ranch in the same manner as at shopping centers, malls, or industrial and business parks. Therefore, SEA appropriately treated ranching separately from business and industrial land use.

SEA recognizes that all of the potential impacts to ranching summarized above have potential economic implications. Ranches are operated to make the most efficient and productive use of the land included in the ranch and the resources the land provides. Additionally, they are operated to require the least amount of man power and labor. Disruption of ranching operations through the construction and operation of a new rail line would reduce the forage available on the ranch, potentially requiring added expenses to feed livestock. More time and labor costs to work and manage the ranch, particularly for moving livestock, would likely be required. Additionally,

costs for new and additional facilities such as fences, barns, and corrals may be incurred due to others being removed or isolated during rail line construction. The potential economic impacts of rail line construction and operation across an operating ranch are discussed in greater detail in Section 3.2.4, Socioeconomics.

3.2.3.2 Farming

The Draft EIS used impacts to cropland to indicate potential land use impacts to farming. Impacts to farming as discussed in detail in the Draft EIS (Chapter 4, Section 4.4.6.1.2) would include:

- conversion of cropland to rail line right-of-way,
- division of larger fields into smaller fields,
- restrictions or problems to access fields,
- modification or elimination of irrigation structures, and
- increased use of public roads by large, slow-moving farm equipment.

Construction of a rail line across cropland would have economic impacts (See the discussion below in Section 3.2.4, Socioeconomics). The only comments SEA received regarding potential project-related impacts to farmland by the Extension Alternatives (not including the Hay Canyon alternatives which are discussed later in this chapter) indicated that, like ranching, farming is a business. SEA recognizes that farming is a business and a means for many in the project area to earn a livelihood. Because cropland involves the use of land to produce feed and forage, however, SEA decided to address it under agricultural land use. SEA's approach does not affect the overall analysis of potential project impacts on farming. As the comments received on farming were not substantive, SEA determined that no additional analysis of this topic was necessary for the Final EIS.

3.2.3.3 Residential

Numerous residences would potentially be affected by construction and operation of either Extension Alternative. Many of these residences are associated with the ranches and farms found throughout the project area. Most residences are in low density areas and may be a mile or more from their closest neighbor. To a lesser extent, these are areas of higher density residences. SEA noted in the Draft EIS that construction and operation of a new rail line would result in a variety of impacts to residential land use, including increased noise, safety considerations, dust, traffic congestion, and potential vehicle delays, as discussed in detail in the Draft EIS, Section 4.3.6.2.

A number of commenters are concerned that residential properties would decline in value as a result of construction and operation of a new rail line, or increases in rail traffic along existing portions of DM&E's rail line. As noted in the Draft EIS, Section 4.3.6.2, SEA expects some negative impact to residential property values.

In response to the comments SEA received on this issue, SEA conducted additional research. SEA's analysis shows that residential property values are based on a variety of factors. Valuation of property is heavily influenced by subjectivity and personal preferences for living space. Also, determinants of residential real estate prices include:

- supply and demand
- economic trends
- season of the year
- location in relation to amenities
- geographic location
- social location

In general, there is a limited supply of most types of real estate, whatever its size, location, or type. The demand for a particular type of real estate is countered by its availability.[17] As demand increases, so will price. As availability decreases, price will increase.

The real estate market is highly influenced by the economy. Generally, in good economic times, real estate prices will increase, reflective of increased employment, wages, and the confidence of the consumers that they will remain employed and be able to handle the debt associated with purchasing a home. Low interest rates also may increase real estate prices as more persons seek to take advantage of the lower payments and debt associated with lower rates. During slower economic conditions, consumers may be worried about assuming greater debt along with concerns about remaining employed or reduced wages. During these times, demand for real estate generally declines, potentially causing prices to fall to levels low enough to entice buyers.

Real estate prices may also fluctuate due to the season of the year. As people tend to prefer to move in the spring or summer,[18] real estate prices may see a rise at these times due to increased demand.

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[17] Mattson-Teig, "Cleveland Targets New Growth Industries," *National Real Estate Investor*, Atlanta, Georgia, 15 October, 2000, pp. 38-43.

[18] Geffner, "How to Read Housing Market Stats," at http://realtor.com/basics/sell/setprice/stats.asp.

The statement "location, location, location" holds true in the real estate market. Access to conveniences has a major influence on residential property value. Nearby amenities such as gas stations, schools, grocery stores, and entertainment opportunities make real estate more attractive to potential buyers, thereby increasing the demand for a particular location. People generally desire to live in the company of others with similar demographics. Income, perceived wealth, ethnic background, and education are some of the attributes people may consider when looking for a home.

Additionally, geographic location, or physical location, may affect the value of a particular property. A favorable climate, scenery, and proximity to such things as lakes or parks often increase residential property demand. Proximity to industrial development (or as in this case a rail line) may cause the property to be viewed as undesirable and reduce the demand. However, people vary in their tastes and tolerances, including tolerance to noise.[19] Thus, even proximity to a perceived nuisance such as a rail line may have little or no affect on property value if other factors increasing its potential value are present.

In the final analysis, real estate values are determined largely by the demand. If a property is in an area of high demand, be it because of the type or size of the house or location, its value will be sustained, even if some negative aspects are present. If the property is not in a demand area, its value will suffer. The personal preferences of the particular buyer are also important. One buyer may be willing to pay much more than another buyer for the same property. The value of a property is therefore highly dependent on finding the right buyer for the right property.

Consequently, while SEA acknowledges that negative impacts to property values are possible from this rail line, it is impossible to generalize about the potential impacts to residential real estate values along the proposed project. One house may experience a reduced selling price while the one next door may not. An economic slow down may cause all real estate prices in the area to decline, while a growing economy may result in price increases for properties adjacent to the rail line. Some decline in value to residential properties likely would occur during construction and initial operation of the proposed line. Real estate values may see a decline due in part to uncertainties about the project and its potential impacts. However, over time, residents often adapt to rail operations and real estate prices could stabilize or increase so that, over time, the proposed project could have relatively little impact on the price of residential real estate.

[19] Walters, *Noise and Prices*, 1975, pp. 41, 58.

Numerous commenters expressed concern that DM&E, a private corporation, could be allowed to take land from private citizens against their will through eminent domain, a process whereby land can be acquired from private citizens for the general benefit of all citizens. SEA points out that because of DM&E's, and for the most part all railroads', responsibility to provide rail service to those shippers requesting it, many states have given railroads the power of eminent domain to enable them to acquire the lands they need to meet the transportation needs of the areas they serve. SEA notes that eminent domain is governed by the various states in which the involuntary land acquisition occurs (here Wyoming, South Dakota, or Minnesota). Furthermore, state laws would provide for compensation to landowners. Finally, several commenters indicated that they had negotiated mutually satisfactory agreements with DM&E for the use of their land. Indeed, DM&E stated that it has agreements with the majority of land owners in this area.

3.2.3.4 Minerals and Mining

In the Draft EIS, SEA indicated that the mineral resources in western South Dakota and eastern Wyoming are among the most productive in the world. The proposed project would provide additional rail service to one of the largest supplies of coal in the United States. Additionally, sand, gravel, and rock resources are found throughout the area. These materials would likely provide material necessary during the construction of a rail line as contemplated by this project. As indicated in the Draft EIS, Alternative B would cross approximately 1.2 miles of existing mining and quarry lands. Alternative C would not cross any existing mining and quarry lands. In addition, DM&E would coordinate closely with each mine it intends to access to ensure the mine access spur would not prevent access to recoverable coal reserves.

As part of its comments on the proposed project, the Bureau of Land Management (BLM), a cooperating agency, requested that SEA provide a comparison of the impacts of the Extension Alternatives on Federal mineral rights. Federal mineral rights include lands managed by the BLM, and other Federal agencies, as well as owned by private citizens, where the Federal government owns the rights to specific or any minerals known or potentially occurring on those lands. However, just because the mineral rights of a particular parcel are owned by the Federal government does not necessary mean any recoverable minerals occur within the parcel.

In response to BLM's request, SEA calculated the distance of land for which the Federal government retains the mineral rights. These distances were calculated using BLM Mineral Ownership maps. SEA determined that Alternative B would cross approximately 106.1 miles (approximately 5,144 acres) of Federal mineral land. This included approximately 27.7 miles in South Dakota (1,343 acres), all of which the Federal ownership is for all minerals. Federal mineral land ownership or management in South Dakota for Alternative B included approximately 2.5

miles of BLM lands, 13.8 miles of USFS lands and 11.4 miles in private ownership. In Wyoming, Alternative B would cross approximately 78.4 miles (3,801 acres) of Federal mineral land where the Federal ownership was for all minerals and approximately 7 miles of land with only Federal ownership of coal. Land ownership or management with Federal ownership of all minerals included 30.2 miles of USFS lands, 45.4 miles of private lands, and 2.8 miles of state lands. Seven miles of private lands where the Federal ownership of coal only would also be crossed.

SEA determined that Alternative C would cross approximately 104.6 miles (approximately 5,086 acres) of Federal mineral land. This included approximately 32.9 miles in South Dakota (1,595 acres), all of which the Federal ownership is for all minerals. Federal mineral land ownership or management in South Dakota for Alternative C included approximately 2.4 miles of BLM lands, 11.0 miles of USFS lands and 19.5 miles in private ownership. In Wyoming Alternative C would cross approximately 72.0 miles (3,391 acres) of Federal mineral land where the Federal ownership was for all minerals and approximately 3.4 miles of land with only Federal ownership of coal. Land ownership or management with Federal ownership of all minerals included 1.6 miles of BLM lands, 29.6 miles of USFS lands, and 40.8 miles of private lands. Approximately 3.4 miles of private land would be crossed with Federal ownership of only coal resources.

Because Alternative B would cross more lands with Federal mineral rights, it would potentially have a greater impact on these resources. However, due to the long and generally narrow linear nature of a rail line, it is unlikely construction and operation of either Alternative B or C would preclude significant recovery of any mineral resources found along their alignments. Therefore, neither alternative is anticipated to have a significant impact on Federal mineral rights.

3.2.3.5 Other Land Use

SEA received few additional comments on the discussion of other types of land use in the Draft EIS, and no additional analysis beyond that presented in the Draft EIS is required here. SEA does note that it did receive comments regarding potential impacts to the Fall River Water Users System — a system of wells and water pipelines to provide water for domestic and livestock needs within the county. However, as this water system would be typical of other utility systems found throughout the project area, potential impacts to utilities were discussed in the Draft EIS, and SEA has included recommended mitigation for utilities, no additional discussion is required.

3.2.4 SOCIOECONOMICS

Normally, SEA does not evaluate the potential socioeconomic impacts of rail line construction proposals. Rather, SEA considers only the potential environmental impacts associated with the direct changes to the physical environment. That is, SEA would consider the impacts associated with actual conversion of land to rail line right-of-way. However, in this case, some of the cooperating agencies requested inclusion of a broader range of potential socioeconomic impacts associated with this project. Therefore, SEA included a discussion of the potential socioeconomic impacts associated with the project in this EIS. As appropriate, SEA has been assisted by the cooperating agencies in preparing its analysis.

As discussed in the Draft EIS (Chapter 4, Section 4.4.16), the proposed PRB Expansion Project would have long- and short-term impacts to the socioeconomic conditions in the project area. Short-term impacts would occur as a result of increased construction employment and activities anticipated to occur for the two to three years of project construction. Long-term impacts related to operation of the rail line would continue for the life of the project, perhaps several decades. Generally, the socioeconomic impacts of the two Extension Alternatives would be similar.

The following provides a summary of SEA's socioeconomic analysis contained in the Draft EIS along with additional analysis conducted for this Final EIS.

3.2.4.1 Population and Demographics

During construction of the proposed rail line, local populations in the project area are expected to increase due to the influx of construction workers. As discussed in detail in the Draft EIS (Chapter 4, Section 4.4.16.1), over 900 two- to three-year construction jobs are expected that would be directly related to construction of either Extension Alternative. Many of these jobs would be filled by local workers, including local construction contractors, ranchers, and farmers seeking additional income opportunities and college and high school students on summer break. Local workers would be expected to commute some distance, potentially as much as 50 miles one way, to the job site. Use of these local individuals would have no impact on local populations.

Additional jobs would be filled by non-local individuals temporarily relocating to the area. Bridge crews would be present year-round for the two to three years of construction. Others would work primarily during the construction season, approximately April to November. As construction would occur in phases — earthwork and bridges, then rail bed and finally track — and at several locations at once, construction workers would be dispersed along the entire

alignment. Only a small portion of the overall work force would be located in any single location at one time. Once a particular phase of the construction was completed, such as bridgework, those workers would relocate out of the project area to other job locations.

The influx of construction workers could result in temporary impacts on local housing and lodging availability, as well as goods and services in a number of communities throughout the project area. These communities would likely include Rapid City, Hot Springs, Edgemont, Newcastle, Douglas, Moorcroft, Wright, and Gillette. However, most workers are expected to use rental property, established trailer and RV parks, or mancamps established by DM&E. Therefore, motels, hotels, and other lodging in these communities should be only slightly affected. However, there would likely be increased demand for rental properties and spaces in trailer and RV parks.

The families of some workers, expected to be only a small percentage of the overall workforce, may relocate temporarily to the area. These workers would likely use trailer or RV parks or rental properties within communities so that their spouses could seek employment and their children attend school. Such families would cause insignificant increases in local populations that should be easily absorbed by the affected counties, based on their small numbers and recent population changes (Draft EIS, Table 4.4-41).

DM&E has indicated that mancamps, most likely resembling RV parks, would be established throughout the project area. One to three such camps would probably be necessary for convenient travel from camp to job sites along the rail line. DM&E could not acquire land for such camps through eminent domain because they would not be part of the actual rail line right-of-way and facilities. Therefore, mancamp locations would be based on the proximity of the alignment to properties of willing landowners. Site development would include water and electrical hookups and waste and sewage disposal and treatment for 20 to 50 trailers, RVs, or campers at each camp.

Currently, it can be difficult for tourists to find lodging in this area, particularly in late summer, due to the annual motorcycle rally in Sturgis, South Dakota which draws thousands of tourists. In addition, many thousands of tourists visit the Black Hills area and Mount Rushmore each summer. Although the presence of construction workers could increase demand for lodging, this is not expected to be a significant problem if construction workers use primarily mancamps and trailer/RV parks. Moreover, unoccupied spaces in mancamps could provide opportunities for tourist RVs and campers, should more traditional areas be full. Following construction, DM&E would either restore the mancamp areas to their original condition or transfer ownership and operation to the landowners, who could continue to maintain and operate them as RV parks for travelers, tourists, and hunters.

During operation of the proposed project, permanent employment (120-350 jobs) would be added to the area, generally at the proposed new rail yards. New employees would likely relocate to communities near these rail yards, although not all new jobs would be filled by non-residents required to relocate to the area. Minor population increases in Wright, Newcastle, Edgemont, Hot Springs, Rapid City, and Wall would be likely to occur. Larger towns offering more conveniences would likely see more workers move in. Since this influx would be a small percentage of the overall population, larger communities should be able to absorb them without experiencing increased prices for housing or other goods and services. Recent population declines (Draft EIS Tables 4.1-24 and 4.2-15) within the project area have resulted in available housing and unused capacity in schools, electricity, and water treatment.

Any increase in population would help offset the steady population declines numerous areas surrounding the proposed line have experienced for many years, and is not expected to burden the communities or counties. Numerous comments on the Draft EIS suggest that the proposed project would provide permanent jobs to the area, potentially preventing further population declines in the rural areas of the project.

3.2.4.2 Employment and Income

The proposed project would provide a wide variety of temporary jobs, as discussed in detail in the Draft EIS (Chapter 4, Section 4.4.16.2). A large number, approximately 900, construction-related jobs would be required over the two-to-three-year construction period. Additionally, about 384 indirect jobs would be created in non-construction areas, such as restaurants, bars, grocery stores, hotels, and service stations, as a result of construction workers buying goods and services, seeking entertainment, and patronizing local establishments. A substantial number of these jobs would be available to local residents and nearby Native Americans. Unemployment would be expected to decrease as a result, potentially leading to better wages and benefits throughout the area to attract qualified workers. Approximately $125 million are expected to be paid in wages to construction workers over the three year construction period (Draft EIS, Table 4.4-42).

3.2.4.2.1 Farming

Construction and operation of a new rail line across cropland would likely increase farming costs. While not the dominant land use in this area, farming occurs primarily adjacent to the Cheyenne River. As discussed in the Draft EIS (Section 4.4.6.1.2), rail line construction and operation would convert cropland to rail line right-of-way, reducing farm revenues and incomes. Crop fields would be divided, potentially requiring additional time and labor to access fields on the

opposite side of the track. Some of the smaller fields created by the rail line crossing may become unprofitable to farm, resulting in reduced expenses to farm these areas — time, fuel, seed, fertilizer — but greater losses in revenues.

Likewise, croplands along the Extension Alternatives, consisting mostly of dryland farming, or non-irrigated lands[20] could become uneconomical to farm or offer reduced profits if subdivided by rail line construction. Information provided by the Bureau of Reclamation indicated that revenue generated from dryland farming would be approximately $116 per acre annually, $66 for crops plus $50 in livestock. SEA has calculated potential lost revenue from conversion of cropland to rail line right-of-way based on the annual estimated revenue per acre and the total acres of cropland converted to rail line right-of-way by each Extension Alternative (Table 3-2). However, revenue losses to agriculture may be somewhat greater because there is no way to accurately predict how many acres separated from larger fields would be taken out of production. This would depend on the size of the field and whether it could be incorporated into an adjoining field, converted to other use, or sold to another landowner. Ultimately, each affected landowner would decide what land to take out of production, based on his or her specific situation and preferences.

Table 3-2
Revenue Losses Due to Conversion of Cropland by Extension Alternatives

Alternative	Cropland (acres)	Annual Revenue Loss
Alternative B	1,149.0	$133,284
Alternative C	1,323.6	$153,537

3.2.4.2.2 Ranching

Construction and operation of a new rail line across existing ranchland could also increase the labor required to move cattle from pasture to pasture across the rail line. Even in areas with culverts, bridges, trestles, or other structures allowing underpass of the rail line, cattle may be reluctant to pass through these confined areas, requiring more time and people to move them across or through rail line underpass structures. Ranch operations may need to be altered or land use changed to reduce costs. Smaller parcels of ranchland divided from the larger ranch property

[20] Cropland along the Hay Canyon Alternatives includes mostly irrigated lands. Impacts to these lands, which occur within the Angostura Irrigation District, are discussed under the Hay Canyon Alternatives.

by rail line construction may become uneconomical to graze if the small size provides limited forage and herding costs are prohibitive. Smaller ranches may be forced to sell out to larger ranches if increases in operating costs are too great for smaller ranches to absorb. Suitable structures for moving cattle would minimize the impacts associated with a rail line crossing through a ranch.

Most ranches potentially crossed by Extension Alternatives are cow-calf operations which maintain a stock of breeding females to raise calves. Calves born from late winter into spring are sold as feeder cattle prior to the onset of winter. Due to climate and the type of forage on ranches throughout the project area, about 35 acres are required for forage per cow/calf pair. Summer grazing may require more land, since cattle cover greater distances to find food when the range is not exceptionally good. In winter, grazing acreage may be less since winter pastures generally offer higher quality forage, and in a smaller area ranchers can more easily monitor cattle for calving and during bad weather. Conservatively, a ranch supports one less cow for each 35 acres lost, which means one less calf each year. With a selling weight of about 600 pounds, at $1.00/pound, the potential economic impact to a ranch would be about $600 per 35 acres lost, or $17 per lost acre per year, in addition to the costs of additional herding efforts. Table 3-3 provides a summary of the potential economic impacts to ranching operations for each of the Extension Alternatives, based on reduction in grazing land and the number of cattle that could no longer be supported.

Table 3-3
Value of Cattle for Extension Alternatives Based on Acres of Ranchland Lost

Alternative	Acres of Grazing/Rangeland	Reduction in Cattle Supported	Annual Value of Cattle Lost
Alternative B	11,229.1	320	$192,000
Alternative C	9,568.9	273	$163,800

Many area ranches to be crossed by the Extension Alternatives obtain supplemental income through hunting-rights fees and leases. Individual hunters pay a per-day, per-season, or per-animal charge for hunting a particular ranch, which may cover camping, lodging, and meals. Other ranches may be leased exclusively by a particular person or group. Often ranchers manage portions of their property to improve wildlife habitat, making the area more attractive to game and earning them higher fees for its use. Ranchers principally charge for the hunting of deer, antelope, and pheasants, although game such as turkeys and waterfowl may also be hunted.

SEA received several comments indicating that the proposed project would reduce ranch revenues by affecting the game on ranch properties, due to loss of habitat and the noise and disturbance of passing trains that make land unattractive to both game and hunters. SEA recognizes that a component of the income for many farmers and ranchers in the project area comes from the recreational opportunities the land provides. These fees can be quite significant, ranging from a few hundred dollars for an individual to hunt to several thousand dollars to lease the rights to hunt an entire ranch. However, as discussed in the Draft EIS (Section 4.4.10.2), SEA does not believe the proposed project would have a significant impact on game populations along any of the Extension Alternatives.

Although there would be some habitat loss and wildlife mortality due to construction and operation, wildlife populations and distribution should not change significantly. Over time, wildlife are expected to acclimate to train operations and reestablish in suitable habitat. Rail right-of-way usually offers good wildlife habitat, since limited human disturbance and protection from adjacent land use (farming and ranching) allows vegetation to become well established and mature. SEA believes that if game remain, hunters will continue to return year after year. Few would be expected to change their traditional patterns, once familiar with the land, and hunters could take advantage of train noise to cover their movements while stalking game. While trains would occasionally spook game and spoil a hunter's opportunity, this should not be the norm.

SEA also received numerous comments expressing concerns that property values of ranches crossed by the proposed rail line would be reduced. Reduction in property values, it was stated, would result from loss of usable land on the ranch and added expenses to continue ranch operations. Added expenses could include:

- Construction and maintenance of additional fencing,
- Duplication of buildings, corrals, and other facilities for the other side of the rail line,
- Installation of new water sources,
- Loss of forage, requiring purchase of hay for livestock, particularly in winter,
- More labor required to trail, herd, and move cattle across the rail line, and
- More time required to move about the ranch because of the rail line and adjacent fencing.

Higher operating costs would result in lower profit margins, reducing the value of the ranch.

SEA agrees that each of these items could reduce ranch efficiency and raise costs, but believes that the degree of impact, not just the likelihood of its occurrence, would determine how much expenses would be increased. Some factors that would determine the degree to which ranch costs would increase and contribute to reduced property values include:

- Ranch size: Smaller ranches would experience more inefficiency than larger ranches.
- Location of the rail line: A ranch divided in half would likely be more affected than one that divided off only a small portion from the rest of the ranch.
- Location of proposed line in relation to shelter, water, buildings, and other improvements.
- Impact on access to and within the ranch and to parcels divided from the larger ranch area.
- Highest and best use: If a property's "before project" highest and best use is residential lots with recreational value, but its highest and best use would be grazing land "after project," the affect on property value would probably be greater than for an equal-sized parcel that would have the same best and highest use both "before" and "after."

As part of any project land acquisition, DM&E would have to compensate landowners. Under Wyoming Statute § 1-26-702(b), which addresses partial taking of a property, a landowner is entitled to the value of property taken or the difference between the value of the entire property before the taking and its value after it, whichever is greater. Obviously, the property value will depend on the size of the ranch, its condition, and improvements, including wildlife habitat improvements to attract hunters and their use fees.

In South Dakota the value of the property after the taking includes the value of the land lost in the taking,[21] and the owner may testify to factors affecting the value of the property, including access to it, rail line proximity to a building, potential lost revenue from reduced hunting fees, and habitat improvements. All would be considered in determining the reduction in property value following the partial taking of the entire property. For this project, DM&E would be required to compensate all owners with land directly crossed by any Extension Alternative.

[21] State of South Dakota v. Henrikson, 548 N.W.2d 806 (S.D. 1996); Corson Vill. Sanitary Dist. v. Strozdas, 539 N.W.2d 876 (S.D. 1995); and Basin Elec. Power Coop. v. Poindexter, 305 N.W.2d 46 (S.D. 1995).

While not conclusive, evidence suggests that property values of farms and ranches crossed by a new rail line would be affected for 5-10 years after the land is acquired.[22] Once landowners are paid for property value impacts, and ranching and farming patterns have been restored or reestablished – new fences installed, new field configurations developed, irrigation structures modified, waterlines installed, pasture rotations reestablished – affected property values would usually return to previous levels. Thus, although DM&E would be required to compensate landowners for impacts to property values determined at the time of the land acquisition, within 10 years property values would likely return to levels comparable to those before construction and operation of the proposed rail line.

3.2.4.2.3 Other Businesses

During construction, workers would purchase necessary goods, services, and materials, so local businesses, farmers, and ranchers offering such goods, materials, and services would see increased sales. Expenditures for new goods and services in the project area should exceed $250 million during the three-year construction period, or an average of approximately $83.3 million per year. Therefore, with an average tax rate of 5 percent, about $14 million in sales and use taxes would be generated by Extension Alternative construction (Table 4.4-43 of the Draft EIS).

Following construction, there would be about 120 permanent jobs, representing millions of dollars in annual payroll, mostly associated with the two proposed new rail yards. As DM&E obtains additional coal contracts and increases rail traffic, 350 permanent jobs could be added in the area, primarily at the West Staging and Marshaling Yard. Local merchants and retailers would likely experience increases in sales, particularly when new employees first move into and establish homes in the area.

Increases in sales and taxes due to railroad construction would be somewhat offset by reduction in sales in other sectors, particularly agriculture. Loss of farm and ranch land would reduce purchases of seed, fertilizer, and fuel previously used to farm lost ground. Cattle reduction would reduce sales of supplemental feed, hay, and veterinary supplies. Reduced agricultural and livestock production would lower revenues for grain elevators and livestock dealers and shippers. Revenues of farmers, ranchers, and agribusiness dealers would decline by hundreds of thousands of dollars, and they would spend less on local goods and services. However, these losses should be significantly less than the millions of dollars of railroad salaries added to the project area.

[22] Elizabeth Hollmann, Rush Creek Resources, Hot Springs, SD, personal communication, 2000.

3.2.4.3 Public Services and Fiscal Condition

SEA determined that DM&E would pay $7.8 to $9.4 million in property taxes per year (Draft EIS, Table 4.4-44) for 40 to 100 million tons of coal transport, in addition to those already collected by the counties, which could fund county projects and services. In most counties, taxes paid by DM&E would represent a 50 percent increase in total county taxes collected at the 40 million tons of coal level and significantly more at 100 million tons. Since these are primarily rural counties with limited development and generally agricultural land use, assessed tax values of these lands are significantly less than the assessed value would be for a modern rail line. The rail line would therefore account for a large portion of the tax base.

SEA received numerous comments that the Draft EIS's projections of taxes to be paid by DM&E in South Dakota counties were too high because of changes in South Dakota's tax assessment method for railroads during preparation of the Draft EIS. Therefore, SEA analyzed the tax code to determine whether modifications to the data presented in the Draft EIS were necessary, and the following discusses this additional investigation.

Under the former taxation scheme, railroads in South Dakota received tax credits for funds invested in system rehabilitation projects, paid county taxes based primarily on tonnage transported within the county, and paid two percent sales tax. To promote railroad use, the state provided tax credits for railroads to rehabilitate their systems for adequate service, particularly for agricultural commodities. Railroads transporting up to 5 million gross tons per year received a 100 percent state tax credit for capital expenditures for rail line rehabilitation. Those transporting 5-10 million gross tons per year received a 50 percent state tax credit, but those transporting more than 10 million gross tons got no state tax credit. DM&E would generally get a 50 percent tax credit, transporting about 60,000 carloads per year, at 263,000 pounds each, for a total of about 7.9 million gross tons. All these tax credits have been eliminated under the new taxation system.

In assessing the portion of state-collected taxes allocated to each county, the State formerly considered the tonnage hauled by the railroad (66 percent) and the mileage of rail line within each county (33 percent). These allocations now have been reversed to place greater weight on the amount of trackage within the county (now 66 percent) and less on the tonnage transported (now 33 percent). In addition, the percentage of sales tax railroads pay on goods and services purchased within South Dakota has been doubled from two to four percent.

South Dakota's new taxation scheme took affect on July 2, 2001, and under it DM&E would apparently pay more taxes than originally estimated in the Draft EIS. By eliminating tax credits for rehabilitation projects, the State would require additional taxes from DM&E, monies which it could previously have used on improvements. This added tax burden could make it more difficult for DM&E to finance needed system-wide improvements. Under any Extension Alternative, DM&E would increase its trackage in Custer and Fall River Counties and the value of trackage in Pennington County, so that it would be assessed more taxes for its facilities in these counties, giving the counties more tax monies. Additionally, the tonnage of material hauled by DM&E would increase substantially, also increasing the amount assessed for tax purposes. However, since the Draft EIS determined that the fiscal impact of the proposed project would be significant additional tax dollars flowing to South Dakota and the counties through which the project would pass, SEA sees no reason to modify its conclusion. The project would provide significant fiscal benefits, although it now appears that the fiscal impact may be somewhat greater than projected in the Draft EIS.

3.2.4.4 Other Quality of Life Issues

SEA received a number of comments concerned with potential quality of life impacts of the proposed project. Concerns included increases in noise, local reductions in air quality, having to wait for a passing train, division of communities or separation of neighbors, reduced community safety, property values, aesthetic appeal of residential viewsheds, and potential increases in accidents.

Overall, SEA recognizes that the proposed project and any of the potential Extension Alternatives have the potential to decrease the quality of life of populations through which the rail line would pass. As explained here and in the Draft EIS, noise disturbance would increase, particularly to those individuals living within a few hundred feet of the track, potentially interfering with residents' sleep patterns, conversations, and recreational activities. Residents in close proximity to and down-wind of the rail line may occasionally notice the smell of diesel emissions. Travelers may experience short delays and they would need to exercise care to avoid a train-related accident. The new rail line would alter the setting of several homes, making the view less aesthetically pleasing.

Construction and operation of a new rail line would require local residents to become concerned and aware of things they have not had to consider before the rail line. Initially, their quality of life may be reduced. However, over time, current residents generally would be expected to adapt to the changes resulting from the presence of the train, just as they do to

construction of new roadways. Additionally, new residents that move into the area would know from the outset that they will face the impacts associated with operation of a rail line.

3.2.5 NATIVE AMERICAN TRIBE ISSUES

Issues and concerns unique to Native American Tribes that were discussed as part of the cultural resources evaluation in the Draft EIS are treated separately here. Cultural resources usually include historic sites or structures and archaeological resources, which are valued for the insight they offer on the history of an area, culture, or civilization and how it lived and worked. Issues discussed in this section relate to traditions and cultural beliefs of the Native American peoples who occupied the region, and do not involve specific sites, nor traditions or cultures no longer in existence. They pertain to concerns, beliefs, and traditions of importance to Native American Tribes, particularly members of the Lakota or Dahcotah Nation, that are still practiced and passed on by many members of the Native American Tribes with historical ties to the area.

3.2.5.1 Treaty Issues

Throughout the Euroamerican colonization of the United States, immigrants and settlers encountered Native American Tribes, creating alliances, marriages, trades, and conflicts. Conflicts often arose when Native Americans attempted to protect the land and resources upon which their lives and culture depended, and ended in treaties with the Federal government. Wars over treaty violations occurred up until the late 1800s.

Two treaties hold particular importance to the Lakota:[23] the Treaty of Fort Laramie and the Treaty with the Sioux and Arapaho.[24] The former, signed on September 17, 1851, established territories for several Native American Nations, including the Sioux, Gros Ventre, Mandan, Arrickara, Assinaboin, Blackfoot, Crow, Cheyenne, and Arapaho. Territories established in exchange for cessation of armed conflict with the U.S. government included all of South Dakota west of the Missouri River and extended into southwestern North Dakota, northwestern Nebraska, northeastern Colorado, eastern Wyoming, and southeastern Montana (Figure 3-21).

[23] General term, meaning "Friend," referring to the various Tribes of the Lakota or Dahcota Nation, more commonly known as the Sioux, the title given them by the early French explorers and trappers.

[24] The formal title of this treaty is "Treaty with the Sioux - Brule, Oglala, Miniconjou, Yanktonai, Hunkpapa, Blackfeet, Cuthead, Two Kettle, Sans Arcs, and Santee - and Arapaho."

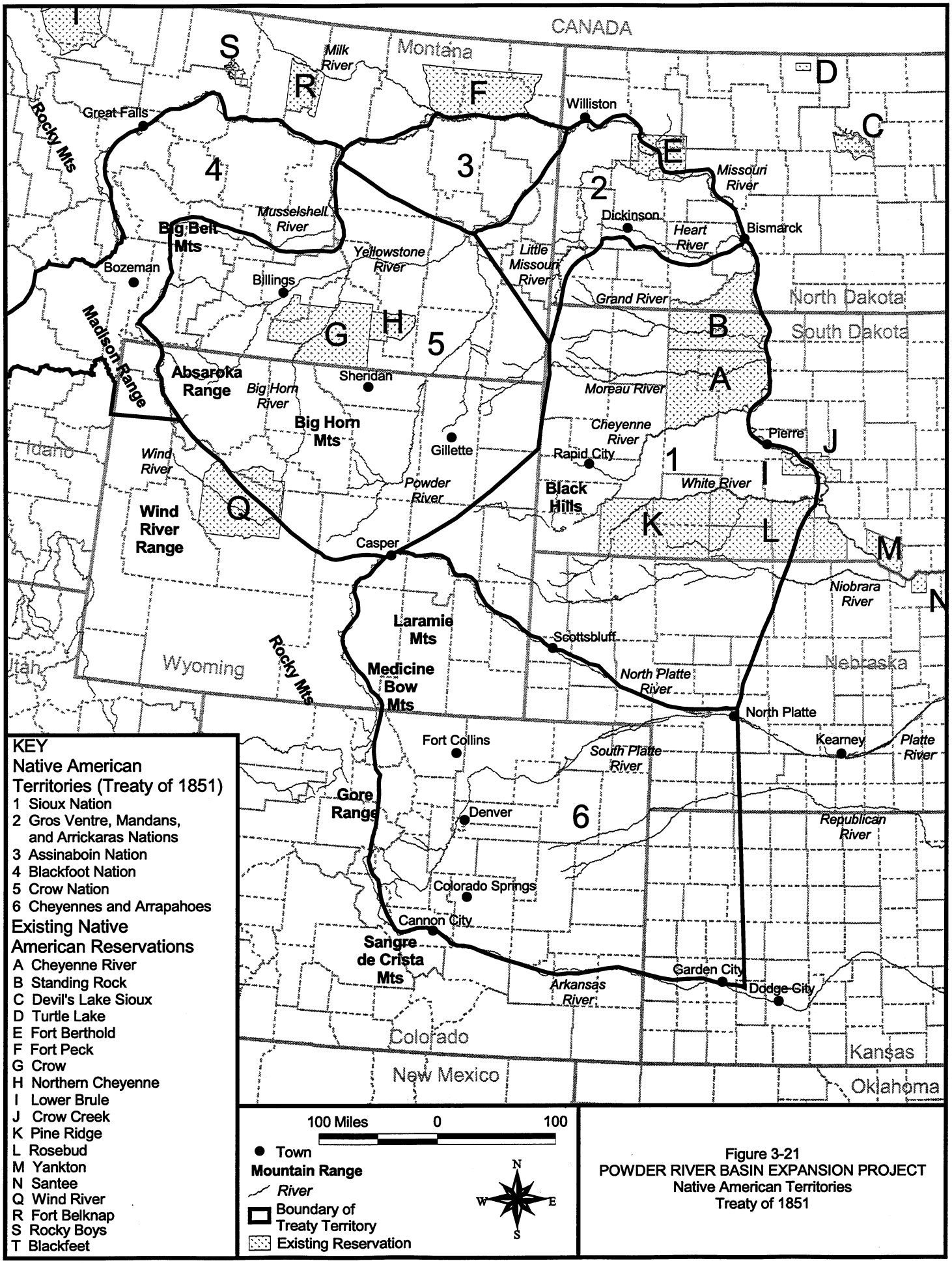

Figure 3-21
POWDER RIVER BASIN EXPANSION PROJECT
Native American Territories
Treaty of 1851

Although the territories were reserved for Native Americans and protected from settlement by Euroamericans, settlers continued to move into the Black Hills and plains regions, settling and farming within the territories established by the Fort Laramie Treaty, renewing conflicts between Native Americans and settlers. After the Powder River War of 1866-1867, a treaty with the Sioux and Arapaho was signed in 1868 (Treaty of 1868), establishing the Great Sioux Reservation (Figure 3-22), on which no unauthorized persons of the U.S. were ever to be allowed to pass, settle, or reside. As part of this Treaty, the Sioux relinquished rights received under the Fort Laramie Treaty, retaining only the lands specified for the Great Sioux Nation and the rights to hunt buffalo north of North Platte, Nebraska and along the Republican River[25] in Nebraska and Kansas.

When gold was discovered in 1874 in the Black Hills, reserved for the Sioux, settlers and prospectors flocked there. While the U.S. government first tried to prevent entry in accord with the Treaty of 1868, they eventually withdrew the troops. The government attempted to purchase the Black Hills from the Sioux, but negotiations were unsuccessful and hostilities resumed.

Congress passed the Act of February 28, 1877, which abrogated the Treaty of 1868 and realigned the boundaries of the Great Sioux Reservation by adding territory to the north while removing the Black Hills from the Reservation. Developed by a presidential committee, this Act (Mannypenny Agreement) was enacted with the signatures of less than the three-fourths of adult Sioux males required by the Treaty of 1868. In 1889, Congress split the Great Sioux Reservation into the six smaller reservations of today, opening up the area between the White and Cheyenne rivers to settlement.

Treaties, Acts, or Agreements after the Treaty of 1868 did not comply with the approval conditions of the Treaty of 1868, and the Treaty of 1868 was never legally abrogated, so the Sioux Nation has argued that the United States illegally acquired the Black Hills. After nearly a century, the Court of Claims in 1974 ruled that the Act of 1877 constituted a taking of land by Congress under its power of eminent domain (Sioux Nation v. United States, 33 Ind. Cl. Comm'n 151 (1974)), and that the Sioux Nation was entitled to fair compensation. A subsequent court proceeding ruled that the Sioux Nation was due $17.1 million, fair value for the land taken in 1877, plus 5 percent interest, from 1877. In a decision rendered on June 30, 1980, the United States Supreme Court upheld the Court of Claims ruling, and reaffirmed that compensation due the Sioux Nation must be paid, but to date the Sioux have accepted no money. Treaty Chiefs and Treaty Council members within the Sioux Nation prefer return of the land itself, and the issue still remains unresolved.

[25] The Republican River was described in the Treaty as the Republican Fork of the Smoky Hill River.

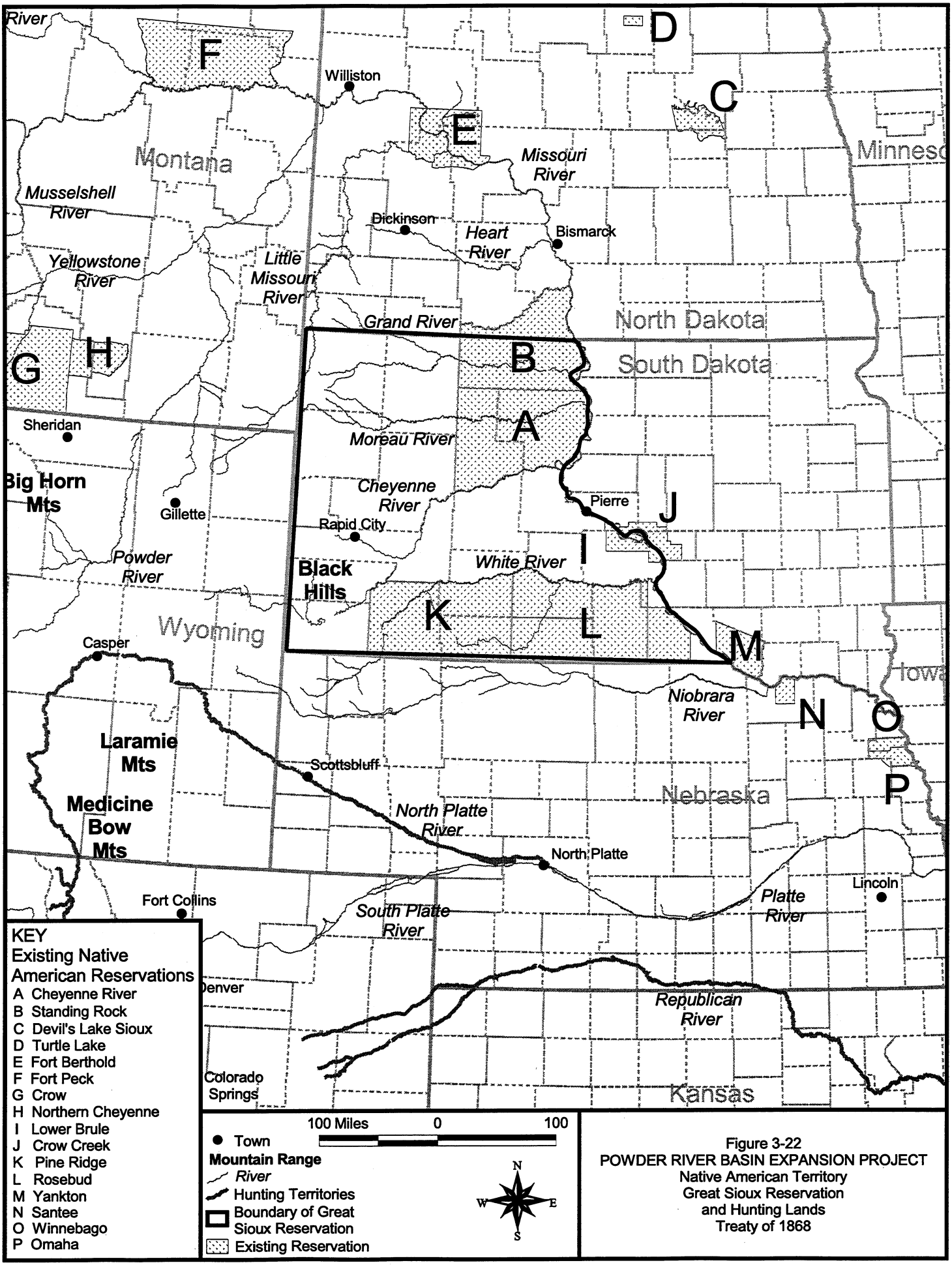

Figure 3-22
POWDER RIVER BASIN EXPANSION PROJECT
Native American Territory
Great Sioux Reservation
and Hunting Lands
Treaty of 1868

Many commenters indicated that the proposed project would violate the Treaty of 1868. The proposed new construction would cross extensive areas within the boundaries of the Great Sioux Reservation established by this Treaty and reserved for the Sioux against encroachment by non-Natives. While the ruling of the Court of Claims, upheld by the Supreme Court, holds that the lands were taken under Congress' right of eminent domain, the Sioux Nation believes that the because the Treaty of 1868 was never legally abrogated, they retain control of the lands within the Great Sioux Reservation. In effect, the Sioux Nation's position is that all occupation of those lands within the Reservation, including ranches, towns, farms, roads, rail lines, and other facilities developed after 1868, are illegal and should be removed, and the land returned to the Sioux. Additionally, the Sioux Nation believes that for the PRB Expansion Project to cross this area, the Sioux Nation must grant its permission and be compensated for the lands involved.

SEA recognizes the complexities of the treaty issues involved in this case, but it is beyond the jurisdiction of SEA or the Board to resolve issues involving whether there was a taking, how a treaty should be interpreted, or to take action in this case which would contradict or question the courts' decisions on eminent domain and compensation due the Sioux Nation. Additionally, it is beyond the jurisdiction of SEA or the Board under ICCTA to require DM&E to provide compensation for land.

3.2.5.2 Traditional Cultural Properties

During the middle to late-1800s, the various Tribes of the Lakota or Sioux Nation were one of many groups of Native Americans that occupied the plains regions of North and South Dakota, Nebraska, Kansas, and eastern Colorado and Montana. However, prior to this time, the area had a several-thousand-year history of habitation by numerous Native American Tribes, some of whom lived year-round in the plains, and others who traveled there during various times of the year to hunt buffalo. Additionally, the Black Hills of South Dakota hold particular spiritual importance to many Native American Tribes since they are considered by many the birthplace of many Native American peoples (like the Garden of Eden of Judeao-Christian background). Many individuals and Tribes traveled to the Black Hills on pilgrimages or for other spiritual purposes.

Over thousands of years of habitation, the Native Americans living and hunting throughout the plains developed traditional use areas. As primarily nomadic hunters and gatherers, they moved from place to place. They learned which areas provided shelter from winter storms or the heat of summer, dependable supplies of water during drought conditions, appropriate stone, wood, and other materials for making tools and lodges, and where the buffalo and other game were likely to be found during the year. These areas were used year after year for generations, although a particular area might be used for only a few days or months at a time.

Traditional use areas developed as part of Native American spiritual life, for sacred or religious reasons. While Native American Tribes did not erect permanent structures for worship, individuals or groups might have used the same hilltop or outcropping for purification, prayer, vision quests, or other religious purposes. Locations were often chosen because of the view or solitude they provided, enabling meaningful meditation or prayer, and used for generations. Traditional camping and hunting grounds also became important components of the religious and spiritual lives of Native Americans. Often these areas provided plants or other materials, such as fossils, considered to have important spiritual powers or significance. Medicinal plants may also have been found in these areas.

Many Native American Tribes buried their dead within or near a traditional campsite so that surviving family members could be near the deceased while the campsite was used. Often cemeteries were established near camp areas, not unlike Euroamerican cemeteries, chosen for proximity to the living and natural beauty. They would commonly be on a hilltop offering wide, scenic view, and articles left there with the dead were and still are considered sacred. Because of their long occupation of the plains and important events in their history and religion linked to the area, the plains and Black Hills hold great and ancient significance for the plains Tribes.

Many of these traditional use areas would likely be classified as Traditional Cultural Properties (TCPs), discussed in detail in the Draft EIS. These generally include areas eligible for inclusion in the National Register of Historic Places (NRHP) because of their association with cultural practices or beliefs of a living community that are rooted in its history and are important in maintaining its continuing cultural identity (National Register Bulletin 38). It is expected that TCPs occur throughout the project area and many would be affected by any Extension Alternative selected. However, since these sites are significant to the Native Americans and subject to looting and vandalism, their identities and locations are often closely guarded by the Tribes. Although no TCPs have been identified within the project area, several archaeological sites identified along the Extension Alternatives could be classified as TCPs.

TCPs anticipated to occur along the Extension Alternatives include camp and burial sites, plant collection areas, and sacred and worship sites, which would be affected if new rights-of-way require removal of artifacts to prevent their destruction, new rights-of-way permanently alter the physical characteristics of the site, or the character of the site is altered by proximity of a new line. A rail line crossing a TCP would encounter physical evidence or remains (artifacts) left by the historic users of the site. Evidence (tepee rings, fire hearths, sweat lodges) and artifacts (projectile points, pottery, tools) would need to be documented and excavated to obtain information of scientific or historic value and to prevent destruction of the resources. Graves containing human remains and funerary objects encountered would be identified, documented,

exhumed, and re-interred at another location, perhaps not nearby or chosen by the descendants of the deceased.

Selection of sacred, worship, and cemetery sites may be influenced by characteristics of quiet, solitude, natural beauty, or a feeling of being close to the heavens. Construction of a rail line across or in proximity to these areas could alter these characteristics and cuts and fills would alter the natural landscape. While at some sites noise and disruptions may not significantly alter the purpose or use of the site, others may no longer be desirable for their former purposes.

It is expected that numerous TCP sites occur along all of the Extension Alternatives, but it is difficult to determine which Extension Alternative would have a greater impact on them. As new construction, Alternatives B and C would have potentially significant impacts, particularly being located along the Cheyenne River, between the Black Hills and the plains. It is expected that there are numerous TCPs within the Cheyenne River valley, along the streams that feed it, and along the hills and ridges overlooking the river. Because both Alternatives B and C utilize the Cheyenne River corridor, both are expected to have significant impacts on many of the same TCPs. If a greater number are located within the Cheyenne River valley, Alternative B would likely have a greater impact on these resources. If a greater number are located along the hills and ridges overlooking the Cheyenne River, Alternative C would likely have a greater impact.

3.2.6 CULTURAL RESOURCES

Impacts to cultural resources would occur if important archaeological or historic sites or structures which could substantially add to scientific understanding of human occupation of the project area are damaged or destroyed during project construction, as discussed in the Draft EIS (Chapter 4, Section 4.4.15). The project area has a rich and long history of human occupation, as discussed in the Draft EIS and further in Section 3.2.5 of this Final EIS. Known sites of archaeological and historical significance occur throughout the area. SEA identified 298 sites within 1.0 mile of Alternative B, 70 in South Dakota, and 228 in Wyoming.[26] Six sites in South Dakota are eligible for the NRHP and 51 sites in Wyoming are eligible or on the NRHP.

SEA identified 408 cultural resources sites within 1.0 mile of Alternative C. Of these, 96 sites were in South Dakota and 312 were in Wyoming. One site in South Dakota and 49 sites in Wyoming are eligible or potentially eligible for the NRHP. SEA determined that because of the

[26] In order to compare the potential impacts of the Extension Alternative to cultural resources, SEA conducted a review of the cultural resources sites known and recorded by the South Dakota State Historic Preservation Office (SHPO), South Dakota Archaeological Research Center, and the Wyoming SHPO.

likelihood that construction of the proposed project would encounter significant cultural resources, the project would have significant impacts to these resources.

The comments SEA received on its cultural resources analysis in the Draft EIS generally pertained to two areas. First, the comments supported SEA's conclusion that significant cultural resources occur throughout the project area and they would likely be significantly impacted by the project. Second, many commenters questioned how SEA could analyze the potential project impacts to cultural resources when all of the alternatives had not been surveyed to determine the cultural resources occurring within and along each of the rights-of-way. These comments referred to the cultural resources survey conducted along portions of Alternative C. In response to these comments pertaining to the on-the-ground survey for cultural resources, SEA provides the following discussion.

NEPA requires Federal agencies to take a "hard look" at the potential impacts of a proposed project. However, it also specifies that the EIS process should rely on available information or information that is not burdensome or cost prohibitive to obtain. As such, it is the general practice, when discussing potential impacts to cultural resources, to rely on information recorded for previously identified cultural resource sites. This case is no different. It is not feasible or reasonable, from a cost or time perspective, due to the length of the proposed project, including over 500 miles of alternatives for new rail line construction to extend DM&E's existing system into the PRB, to conduct a detailed cultural resource survey for the EIS process. Therefore, SEA relied on available information for its analysis in the Draft EIS. Even with this information, as noted previously, SEA determined the proposed project would have significant impacts on cultural resources.

Although a cultural resource survey was not necessary for the EIS process, such a survey is required for compliance with Section 106 of the National Historic Preservation Act. The Section 106 process requires the identification and mitigation of cultural resources determined eligible for the NRHP that would be affected by a proposed project. Completion of this process requires extensive on-the-ground surveys, testing of sites identified, and, if significant sites are identified, appropriate mitigation. Additionally, completion of the Section 106 process is generally required prior to initiation of construction as part of Federal approval or permits.

DM&E recognized the potential time required to conduct cultural resources surveys and any subsequent mitigation. Therefore, it decided to proceed with on-the-ground surveys prior to any project approval in order to reduce delays to commencing construction should the Board and the cooperating agencies decide to approve the project. Because DM&E had no expertise in cultural resources, and because SEA was working with the cooperating agencies and consulting

with the Wyoming and South Dakota SHPOs, Advisory Council on Historic Preservation, and the Tribes, it requested that SEA, through the use of its third-party contractor, conduct the necessary surveys to ensure the surveys complied with the requirements of the various agencies and the Programmatic Agreement under development for the project. SEA therefore directed its third-party contractor to conduct a survey of the route DM&E desired to be surveyed. DM&E requested the alignment of Alternative C be surveyed, even though it was not its preferred alternative and no decision on the project had been issued. DM&E assumed the risk that, should the project ultimately be approved, Alternative C would be the route approved. It understood that no decision on the project had been made and that if the project was denied, the work would be for nothing. Moreover, should Alternative C not be approved, DM&E would be required to complete survey work for the alternative approved.

Under the direction of SEA, the third-party contractor conducted an intensive survey of Alternative C in South Dakota. However, because land access was through landowner permission only, the entire alignment of Alternative C could not be surveyed. Time, cost, and weather constraints prevented completing the survey in Wyoming.

A total of 111.5 miles of Alternative C in South Dakota were surveyed. The survey identified 238 sites within the proposed rail line right-of-way, including 57 sites considered eligible for the NRHP — an average of slightly over 2 sites per mile, with just under one significant site every two miles. Sites identified included cairns (stone piles possibly covering a grave), stone circles, areas of scattered artifacts, campsites, one town site, farmsteads, roads/trails, dumps, one irrigation canal, and one dam.

Although the entire alignment in South Dakota has not been surveyed and surveys in Wyoming have not been completed, SEA has estimated the potential impacts of Alternative C on cultural resources by using data obtained from the surveys completed. Based on a project length of approximately 263 miles of new rail construction, Alternative C could be expected to have about 526 cultural resource sites within the proposed right-of-way, of which approximately 132 would be eligible for the NRHP and require mitigation. This represents a significant impact to cultural resources.

Although no surveys of Alternative B have been conducted, the density of known sites and comparable location of Alternative B indicate that Alternative B would have similar impacts to cultural resources. Alternative B is slightly longer than Alternative C (265.8 miles versus 263.8 miles), so it is likely to have slightly more cultural resources within the right-of-way. No significant difference between the impacts of Alternatives B and C to cultural resources would be

expected, although either alternative would have significant overall impacts, as SEA indicated in the Draft EIS.

3.2.7 WATER RESOURCES

The proposed project would affect a variety of water resources, including surface waters (streams, rivers, lakes, ponds), groundwater, and wetlands. The following sections summarize the impacts to each of these resources as presented in the Draft EIS, the comments received concerning these resources, and the results of additional analysis SEA conducted to address these comments.

3.2.7.1 Surface Water

SEA discussed in the Draft EIS the potential impacts to surface waters, including increased sedimentation, disturbance to stream corridors, stream channel modifications, and loss or degradation of riparian areas. SEA measured the degree of impact from each alternative by determining the number of river and stream crossings for each Extension Alternative. SEA also received comments during scoping that the Cheyenne River was a sensitive and important resource in the project area. Therefore, SEA determined the length of each alternative that would be within 500 feet of the Cheyenne River or its tributaries as a measure of the potential for construction to affect the Cheyenne River.

In the Draft EIS, SEA indicated that Alternative B would cross 20 perennial streams, 14 in South Dakota (including three crossings of the Cheyenne River) and six in Wyoming. Alternative B would also cross 623 intermittent streams, 208 in South Dakota and 415 in Wyoming. Approximately 21.9 miles of Alternative B would be within 500 feet of the Cheyenne River or its tributaries.

Additionally, SEA indicated that Alternative C would cross 14 perennial streams, 10 in South Dakota (including 3 crossings of the Cheyenne River) and four in Wyoming. Alternative C would also cross 520 intermittent streams, 230 in South Dakota and 290 in Wyoming. Approximately 20.9 miles of Alternative C would be within 500 feet of the Cheyenne River or its tributaries.

As with nearly all the resources SEA analyzed in the Draft EIS, SEA received comments expressing concern that the proposed project would have significant impacts on surface waters. Of particular concern were impacts to the Cheyenne River. Commenters noted that SEA indicated that Alternative C would have less impact to the Cheyenne River than Alternative B.